and method, spatial and relational data are automatically synchronized to overcome this problem.

BRIEF DESCRIPTION OF THE DRAWINGS

[0018] The accompanying drawings, which are incorporated in and form part of the specification, illustrate the present invention, when viewed with reference to the description, wherein:

[0019] Figure 1 is a block diagram of the structure of a core module data archive for a transportation information system;

[0020] Figure 2 is an illustration describing an anchor linear referencing method (LRM);

[0021] Figure 3 depicts the detail layers of a transportation information system network road data model;

[0022] Figure 4 is a block diagram depicting maintenance of an anchor linear referencing method;

[0023] Figure 5 depicts other linear referencing methods;

[0024] Figure 6 is a block diagram depicting the translation between linear referencing methods for a linear referencing system used in a network road data model;

[0025] Figure 7 illustrates disjointed attribute values for an anchor section;

[0026] Figure 8 illustrates a complicated attribute update;

[0027] Figure 9 is a block diagram depicting storing of event data;

[0028] Figure 10 is a block diagram showing the use of jurisdictional areas;

[0029] Figure 11 is a block diagram depicting querying of transportation information system data;

[0030] Figure 12 is a block diagram showing an overview of a road division data model, in accordance with the system and method;

[0031] Figure 13 is a block diagram showing Entity class types, Entity classes and Entities of a Entity-attribute data model, in accordance with the system and method;

[0032] Figure 14 is a diagram showing attribute table structure, in accordance with the system and method;

[0033] Figure 15 is a block diagram showing query relationships;

[0034] Figure 16 is a block diagram showing different location referencing methods;

[0035] Figure 17 is a diagram showing a data dictionary for entities and attributes, in accordance with the system and method;

[0036] Figure 18 is a diagram showing a data maintenance data dictionary table structure, in accordance with the system and method;

[0037] Figure 19 is a diagram showing a session data table structure, in accordance with the system and method; and

[0038] Figure 20 is a diagram showing a locks data table structure, in accordance with the system and method.

DETAILED DESCRIPTION OF THE INVENTION

[0039] The present invention is a method and system for providing an open database model that allows the combining of spatial and linear attribute data in a single relational database. The integration of spatial and attribute data allows the data to be accessed by either standard structured query language (SQL) or a GIS viewing application.

[0040] As an exemplary embodiment of the invention, the system and method are herein described in the context of an implementation of a transportation information system (TIS) that meets the afore-mentioned requirements of the Georgia Department of Transportation (GDOT). As such, the system and method described herein will be discussed in the context of an implementation of a core module of the GDOT TIS, specifically a transportation systems and facilities (TSAF) system. It will be apparent to one of ordinary skill in the art how to modify the system and method for integration with other GIS and transportation systems.

[0041] For purposes of the understanding the description herein, a number of terms in the industry are defined below or described with respect to the requirements of the system and method as described herein:

[0042] **Road network data.** Road network data is data that defines the road to the extent that the information can be queried based on a set of desired road characteristics. Attributes of the road network (i.e., road characteristic data such as pavement type, number of lanes, location in the network) and events that occur along the road network (e.g., accidents, potholes, flooded roadways)